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which the others were made to those most highly finished. He said he should leave the collection with the Society, to be inspected, and he should be present to give any information that might be required.

The following paper was then read :—

Is the Character of the Scotch the Expression of the Soil of Scotland?

BY JOHN CLEGHORN.

Mr. CLEGHORN noticed that the diversity of character in the east and west country Scotch was very great, and the diversity, he ascertained, could not be imputed to climate. He observed, too, that the inhabitants of each county in Scotland had its own dialect and its own type of man ; and that in Caithness, the natives of each of its parishes have distinctive features and dialect. The author found that in Caithness the best cereals, cattle, and men, were raised on the boulder clay, and that where it was wanting the corn, cattle, and men were miserable.

THE AREA OF THE BOULDER CLAY IN SCOTLAND.

He ascertained that the area of the boulder clay in Scotland was, on the east, of a line running from Dumbarton to near Sandside in Caithness, and that this line divides the country into two strongly-contrasted regions, an eastern and a western. The east is a land of enormous depositions ; the west, one of equal waste and transport. To ascertain the character of the organisms on each side, he took the Board of Trade returns, and from these constructed the following tables, showing the population, area, acreage of crops, corn crops, and number of cattle and sheep in the east and west, dividing the country as near as he could, to harmonise with the line indicated by Professor Nicol, as that which divides the country into two strongly-contrasted regions. The counties on the east are Aberdeen, Banff, Berwick, Caithness, Clackmannan, Edinburgh, Elgin or Moray, Fife, Forfar, Haddington, Kincardine, Kinross, Linlithgow, Nairn, Peebles, Perth, and Selkirk. On the west, Argyle, Ayr, Bute, Dumbarton, Inverness, Lanark, Renfrew, Ross and Cromarty, Sterling and Sutherland :—

	Population.	Area in Acreage.	Under Crop.	Under Corn.	No. of Cattle.	No. of Sheep.
East	1,330,989	6,868,384	2,328,212	872,141	440,476	1,802,248
West	1,448,653	10,102,637	1,038,636	284,260	553,253	2,304,046

Of the comparative value of the corn, the cattle, and the sheep of the two sides, these returns tell us nothing ; but the value in favour of the east must be great, seeing Aberdeen sends the best beef and mutton in the London market, and more of these than all the rest of Scotland, while the west sends none there. The state of the inhabitants on the two sides he now looked at, and took the Registrar General's

Report for 1864, and from that report constructed the following table :—

Births.	Illegitimate per cent. for ten years.	Marriages.	Deaths.	Respiratory Deaths.	Zymotic Deaths.
East 47,331	10 per ct.	9,767	30,360	3,749	7,749
West 56,517	6 per cent.	11,388	39,055	5,746	10,508

The birthrate of the west is greatly in excess of the east rate, through the operation of this law, made known by Doubleday : "Nature only causes an increased productiveness when species is put in danger, and in the ratio of the danger." "This law," says Doubleday, "runs through the vegetable and animal creation. The plant or animal that is starved as to natural aliment, is prolific in proportion. Hence all rich aristocracies decrease, all poor communities increase. Nature, by this beneficent law, causes luxury to be barren, to stop the progress of disease, and poverty to be prolific, to save the species from extinction. In a comparison of the English and Scotch birthrates, we see the same truths taught. There can be no doubt that the English dietary is, in quantity and quality, far higher than the Scotch ; and the Registrar-General tells us that in Scotland 348 wives give birth to 100 children, while it requires 386 wives in England to produce 100 children in the year. The low illegitimate rate of the west, apparently so indicative of thought, is thus explained. The dissuasives from illegitimacy are the same on the east that they are on the west ; it follows, then, that on the east the promptings must be stronger than the dissuasives, while on the west the dissuasives must outweigh the promptings ; therefore the *vis vite* must be less energetic on the west than it is on the east. That this must be the cause of the low illegitimate rate of the west, is what the table showing the food produce of the west would imply ; but it is put beyond a doubt by these facts that the bastardy rate of the east is highest in the counties where the cereals and cattle are in the highest perfection, and the higher faculties of man best developed. The highest illegitimate rate on the east, then, evinces in its population *generally* an amount of restraint so great as can only exist among men and women of a high order. This sentiment is well expressed by Hume when portraying Queen Elizabeth's character. He says : "In her family, in her court, in her kingdom, she remained equally mistress. The force of the tender passion was great over her, but the force of her mind was still superior ; and the combat which her victory visibly cost her serves only to display the firmness of her resolution and the loftiness of her ambitious sentiments." The evils of low nutrition, or in other words, the want of soil, is further shown in the high marriage rate of the east. Notwithstanding their want of soil, their low dietary, and the consequent apathy there must be in their men and women, their slight promptings to marriage are at once gratified, heedless of all the evils improvident marriages necessarily entail. But the chronic starvation of the west

is put beyond doubt by the high deathrate of the west. Had the west rate been that of the east, the deaths would have been 34,133, and not 39,055, as we find it is; thus nearly five thousand fall a prey to destitution annually. That the excess at least arises from want of nutriment, appears from these facts; that the deaths of the west from affections of the respiratory organs were nearly 1,000 in excess of the east rate, and of children more than 2,000 died in excess of the east from zymotic diseases. "Consumption," says Dr. Hewitt, "in its many forms and disguises, appears to be essentially connected with want of food."

The want of soil, the want of food, on the west, is further seen in the Gaelic, for it and heather go together. On the west, too, there is one university, on the east three. On the west the most distinguished generals have been produced, on the east the most distinguished scholars. Aberdeenshire has turned out more *senior wranglers* than all the west, perhaps than all Scotland. The religious revolutions of the Scotch have arisen on the east. On the west they move in masses. At the Reformation the west was governed by the chiefs; at the disruption, by the minister. The west man's religion may be shortly characterised: priest-worship, *i.e.* the worship dictated by the priests. The east man's as self-worship, or in other words, the worship which the individual eliminates for himself from sources of information which he possesses, and the process of his own thoughts. Though called Protestant, the religion of the west is essentially Papish, and Popery is the religion of poor soils. The east man is taller and bigger-headed than the west man. Mr. Cleghorn thinks that diversity in man is necessary to the health of the species, and that diversity in soils is the means for its attainment, and the law that determines diversity in soil he discovered in 1857. The law is this: the prevalent wave-producing wind here, and over the northern hemisphere, the S.W. wears the headlands into precipices, which send back the debris by counter or reflux current, which necessarily tends to shoal up the opposite side of the bay, firth, or sea. The contour of our east and west coasts arises from the action of this law, and it has determined the soil of the country. The soil has determined the food, the food has made race, and has determined the birthrate—legitimate and illegitimate—the marriage-rate, and the death-rate, language, and religion; therefore the character of the Scotch is the expression of the soil of Scotland.

[This paper will appear in full in the *Memoirs of the Society*.]

The thanks of the meeting were given to the author of the paper.

The Rev. Dr. IRONS wished to know whether Ireland was to be regarded as the west of Scotland, and whether any difference was admitted to exist between the two sides of Ireland.

Mr. A. L. LEWIS agreed with the author of the paper, that great influence is exercised on the character of a people by soil and climate, but in the instances adduced he thought the differences were attributable rather to difference of race than to the character of the soil. He differed also from the author in his conclusions respecting the difference in the numbers of illegitimate births, and as to the effects of the winds, and on some other points, but there was much in the paper with which he agreed.

Mr. G. HARRIS said that no doubt it appeared that climate and soil have considerable influence on the character of the inhabitants, but they were not the principal causes of differences. Difference of character was often observed without differences of soil; in confirmation of which he referred to several parts of the Continent, where, with soil equally rich, the characters of the people were very different.

Mr. McGRIGOR ALLAN thought the author of the paper had not exactly made out his position, that the character of the soil influenced the character of the people. Dr. Knox was against him on that point, and he (Mr. Allan) was disposed to disagree from Mr. Cleghorn. He doubted whether the western winds had the baneful effects they were said to have, and thought the effects of the east winds were much worse. It was also against Mr. Cleghorn's views that the principal commercial town in Scotland was situated in the west. He was inclined to attribute the differences in the character of the Scotch to difference of race, which induced the Gael to cling to the mountains, and the Anglo-Saxons to prefer the lowlands, and that they were thus rather associated by inclination to the soil and climate than influenced by them. As to Scotch marriages, there was an erroneous impression in England that the ceremony of marriage was almost dispensed with in Scotland, and that the consent of the parties only was necessary. If that were so, it was based on the opinion of the most eminent English lawyers that mutual consent of the parties to live together constituted a marriage. Mr. Allan was proceeding to enter more fully into the subject when the CHAIRMAN interposed, reminding him that this question was irrelevant to the matter of the paper.

Mr. J. MEYER HARRIS said the question was, what was the effect of soil and climate on the inhabitants, which might be resolved into the consideration of a question of food. Different soils produced different qualities of food, the effect being experienced by animals as well as by men, and that was a likely cause of difference in the characters of people of different countries.

The Rev. Mr. BEATON remarked, in reference to the alleged difference in intellectual character between the inhabitants of the west and of the east of Scotland, that in the University of Aberdeen the majority of the students came from the western part of the country; and he thought, in opposition to the author of the paper, that the greater superiority of intellect was exhibited by the inhabitant of the west of Scotland.

Mr. MACKENZIE expressed disappointment with the paper, in which the Scotch character was not discussed at all. It entered into a variety of details about legitimacy and illegitimacy, about priest-worship and self-worship. The paper was topographical, geographical, agricultural, but not anthropological. It might have been compiled from the registrar's reports at Somerset House for presentation to the Statistical Society, instead of being prepared to be read before a meeting of anthropologists, and he was astonished that a countryman of his should have treated such a subject in such a manner. Soil and climate, he thought, must have some influence on race character, and he hoped to have heard that question brought forward and investigated, but

nothing of the kind had been done in the paper, which he did not think did credit to the intellectual and literary talent of his countrymen. He thought the question should be pursued with larger views, and upon a larger field of observation, and considered with reference to mixed races. In the north of Scotland the influence of different races on the natives was perceptible, but he disagreed with the author of the paper as to the difference of character between those on the east and west. Difference of food, no doubt, had an influence on character, but he did not consider the author was warranted in the general conclusions he had drawn in his paper, for the area of observation had been too small, resembling that of White's Selborne.

Dr. HUNT thought the paper was, for the most part, strictly anthropological. The author asked the question—"Is the character of the Scotch the expression of the soil of Scotland?" That was an important question, not previously sufficiently touched on by anthropologists. He did not appear as the advocate of Mr. Cleghorn, but he must say he thought there was a deal about anthropology in the paper. The more they investigated their science the more they became convinced of the connection between the characteristics of man and the circumstances by which he was surrounded. By the word soil, Mr. Cleghorn took into consideration the whole phenomena and conditions in which the Scotch are placed, and founded certain conclusions upon them. Seeing that the science of anthropology is little more than organic chemistry, the question of external influences was an important one for their consideration, and he hoped the author's views would be deliberately discussed. The author of this paper said that our best cereals, our best cattle, and our best men and women were raised on the boulder clay of Scotland. They were not in a position to deny that statement, nor his other statements as to the difference between the people on the east and west coasts. Were these facts, or were they not? Again, as to the statement that the west part of Scotland was more remarkable for its warriors than the east, several instances might be adduced in confirmation of that opinion. Then, as to the alleged effect of luxury in producing barrenness, that was a physical question of great importance, well deserving consideration. As to the statement that the people of the west of Scotland worshipped their priests, and that those on the east were disposed to inquire into religious matters for themselves, there was nothing so wonderful in that, if it be admitted that language and religion are influenced by circumstances as well as character. As he before observed, they should consider the question as one of organic chemical anthropology. Mr. Lewis had said that all the differences observable between the people on the west and on the east of Scotland might be attributed to difference of race. The author of the paper did not think so, but considered that the explanation of the difference might be found in the difference of climate and soil. He was himself inclined to attach a great deal of the diversities to race distinctions, at the same time the author of the paper presented another view of the question. He thought they were to be explained by climatic and geological differences, and that the difference in the characters of the Scotch on the east and west coasts

were to be explained by them. Mr. Cleghorn's hypothesis well deserved consideration, and they were indebted to him for having given them a most suggestive paper.

Mr. CARMICHAEL expressed the opinion that the author of the paper was mistaken in stating that the people in the west of Scotland were priest-worshippers.

The Rev. Mr. MACBETH did not agree with Mr. Cleghorn's conclusions, but thought he had presented many facts that were worthy of consideration. The question was, whether the difference observable in character between the people of the west and east was due to soil and climate or to difference of race. There was no doubt a striking coincidence in the boundaries of the two races, and in the character of the districts they inhabit, but he thought it rather showed that affinities exist between the natures of the soil and the character of the races. There were social distinctions apart from soil and climate; but that the latter have an influence on character he thought no anthropologist could deny, and their influence ought to be recognised. There could be no doubt that they had great influence on the Irish character. There were several facts given in the paper which did not appear to have a bearing on the question, and there was a certain development of the humour of his countrymen, especially about legitimacy and illegitimacy, which made him suspect the author was "trying it on." There were at the same time many important facts mentioned, one of which was the assertion that the shore on one side of Scotland was rising up, and on the other going down. The alleged difference in size between the men on the east side and on the west he attributed principally to racial distinctions.

The CHAIRMAN said the object of the paper seemed to be to show that the people in the eastern part of Scotland were of a higher character than those in the west, but he was not inclined to agree with the author in several of his conclusions. Difference of race between the Gaels and the Saxons might account for many of the differences observed. With regard to religion, he did not think that the people in the east, who were said to be self-worshippers, were any better in that respect than the priest-worshippers of the west. With regard to the conclusions drawn from the facts stated about illegitimacy, he considered that the author of the paper was altogether wrong, and that the inferences from his facts were the reverse of those he had drawn. It had been said that the whole question resolved itself into a question of food, but there were other causes on which the character of a people depends. The improvement of character did not depend upon the nature of the soil, for the most civilised people might exist in a wholly manufacturing country.

Mr. MACBETH having been called on, as a fellow-townsmen of Mr. Cleghorn, to reply on his behalf to the observations on the paper, said that he had no doubt Mr. Cleghorn would feel highly gratified by the manner in which his paper had been received.

The meeting then adjourned.
